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| EXAMINER | |
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| KELLEY, STEVEN SHAUN | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/577,668 | LI ET AL. | |
| | Examiner | Art Unit | |
| | STEVEN KELLEY | 2617 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *25 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *14-17 and 19-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-17 and 19-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 14 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The feature "at least one centralized as well as at least one decentralized period of time are assigned to the second communication system", is recited twice in claims 14 and 24. Additionally, "centrally assignment" (as recited in claims 14 and 24) is unclear and should be changed to "central assignment".

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 14-17 and 19-26 are rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent 7,215,659 to Chen (Hereinafter "Chen") in view of U.S. Patent 7,277,412 to Sugaya et al. (hereinafter "Sugaya") and U.S. Patent 7,251,488 to Chitrapu (hereinafter "Chitrapu") .

Regarding claim 14, Chen teaches a method for operating first and second radio communication systems (WLAN network in global access area 128 and Bluetooth network in access area 118, first and second systems respectively) incorporating a plurality of radio stations and having radio coverage areas that overlap at least in part (see Figs. 1A-1C), comprising: sending a message by the first radio communication system to at least some of the radio stations of the second radio communication system with instructions for organizing communication within the second radio communication system (see step 514 in Fig. 5, which teaches a global access point (such as WLAN AP 120) “Transmit global signals”, to the remotely-cooperative scheduling (RCS) control point (CP) 150 (recited radio station of the second radio network) after the global access point has received local timing signals (step 508) and has adjusted and synchronized timing on global (WLAN) and local (Bluetooth) networks steps 510 and 512, see also column 23, which teaches the processes of the WLAN AP 120); and instructing at least one radio station of the second radio communication system, via the message from the first radio communication system, to send information contained in the message concerning the organization of communication within the second radio communication system to other radio stations of the second radio communication system (see steps 410-414 in Fig. 4, which teach that the remotely-cooperative scheduling (RCS) control point (CP) 150 (which operates on a local Bluetooth network area 118, recited second network) receives the global timing signals from WLAN AP 120 (step 410) and schedules the timing of local devices (such as devices 112, recited “other radio stations of the second radio communication network) based on the available time periods

identified in the received global signals information (steps 412 and 414). Regarding the recited "instructing, via the message, to send", as the RCS CP 150 inherently distributes the timing information received from the WLAN AP 120 (see steps 412 and 414 after "receiving global signals" in step 410), the reception of this global timing map (recited message) inherently causes ("instructs, via the message") the RCS CP 150 to transmit or "send" the information, as recited. In other words, the RCS CP 150 is inherently preconfigured to send ("instructed to send") the timing information received from WLAN AP 120, in response to receiving the message ("via the message").

If the recited "instructing, via the message, to send", is not found to be inherently performed by Chen, it would have been obvious to one of ordinary skill in the art to modify Chen to perform this feature, as the timing signals included in the received global message are necessary for coordination of the local Bluetooth network.

Regarding the recited feature (previously recited in claim 18), "wherein the information concerning the organization relates to at least one of the timing of at least one period of time for communication within the second radio communication system based on a centrally controlled radio access method and the timing of at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", although any time period that does not have WLAN communications scheduled (as shown in Fig. 3C) in the global timing map could be broadly interpreted to be "at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", Sugaya is added for completeness to show this feature. It is also

noted that "centrally" and "decentrally" are relative terms. For example, locally controlled slave devices may be considered to be centrally controlled relative to a second (local) network, however as these devices are not controlled by global network, so they may be considered as decentrally controlled relative to the first (global) network.

In an analogous art, Sugaya teaches a communications system which allows a plurality of wireless networks to (coexist and) communicate using a same frequency band (see Summary of Invention in column 4) which provides channel slots for each network in a TDMA space. Sugaya teaches/shows in Fig. 2 (as described in columns 8-9) a "beacon signal", followed by a "contention access period" (CAP), followed by a "contention free period" (CFP). As a "contention period" is not centrally controlled (i.e. devices "contend for communications"), the "contention access period" which follows the beacon signal is "at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", and the contention free period (which includes dedicated periods for communication which must be scheduled by some central device) is a period of time that is centrally controlled, as recited. Suguya also teaches that unused time slots (in one network) may be used by another network (see for example Fig. 11 and the Abstract).

Therefore, as Chen also teaches (see column 2, lines 39-50, "connecting devices in peer-to-peer networks" which communicate "without a dedicated administrative server or master device") "decentrally controlled" peer-to-peer networks, and Sugaya teaches the conventionality of providing timing signals for a plurality of networks (which include both centrally and decentrally controlled periods as recited), it would have been obvious

to one of ordinary skill in the art to modify the scheduling of Chen to transmit signals as described in Sugaya, in order to schedule both "central and decentrally controlled periods", as is conventional.

Regarding the newly recited feature that the first radio communication system "is a cellular system" and "wherein central assignment of radio resources takes place by the cellular system and wherein at least one centralized as well as one decentralized period of time are assigned to the second communication system", Chen teaches assigning time periods in WLAN and Bluetooth networks, and does not explicitly mention cellular networks.

In an analogous art, Chitrapu teaches a system and method for integrating cellular and WLAN communications to a user device (see Abstract). Chitrapu describes a number of scenarios (as shown in Figs. 2-10) of transmitting user traffic and control signals to the user device based on the user device capabilities (A-C) and the level of integration (levels 0-2) between the cellular and WLAN networks (as described in columns 2-3). In the examples shown in Figs. 2, 5 and 8 (where the user device has level 0 integration), the user device can only communicate with one network (either the WLAN or the cellular) but not both simultaneously.

Therefore, as the purpose of Suguya is to avoid unused time slots in overlapping networks and Chitrapu teaches scenarios of communicating with only a single network (and thereby creating unused time slots in the unused network), it would have been obvious to modify the methods of assigning the recited time periods of Chen/Suguya to

be used in a central cellular network as taught by Chitrapu, in order to allocate time slots in cellular and WLAN networks, as is conventional.

Regarding claim 15, which recites "wherein the instructions relate to timing specifications for communication within the second radio communication system", the global signals transmitted from WLAN AP 120 to RCS 150 "relate to timing", as recited.

Regarding claim 16, which recites "wherein the instructions relate to at least one period of time for communication within the second radio communication system based on a centrally controlled radio access method and at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", the global WLAN timing signals (as shown in Fig. 3C) of Chen are "centrally controlled radio access methods" as recited, as even though the time periods for WLAN communication are "in" the first network, these same time periods are also periods of time "within the second radio communication system". Although any time period that does not have WLAN communications scheduled (as shown in Fig. 3C) in the global timing map could be broadly interpreted to be "at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", Sugaya is added for completeness to show this feature. It is also noted that "centrally" and "decentrally" are relative terms. For example, locally controlled slave devices may be considered to be centrally controlled relative to a second (local) network, however as these devices are not controlled by global network, so they may be considered as decentrally controlled

relative to the first (global) network. Therefore, as Chen also teaches (see column 2, lines 39-50, "connecting devices in peer-to-peer networks" which communicate "without a dedicated administrative server or master device") "decentrally controlled" peer-to-peer networks, and Sugaya teaches the conventionality of providing timing signals for a plurality of networks (which include both centrally and decentrally controlled periods as recited), it would have been obvious to one of ordinary skill in the art to modify the scheduling of Chen to transmit signals as described in Sugaya, in order to schedule both "central and decentrally controlled periods", as is conventional.

Regarding claim 17, which recites "wherein a time for sending the information concerning the organization is communicated to the at least one radio station via the message from the first radio communication system", the recited "time for sending" is any "free time period" (any time/frequency block without WLAN communication) shown in the global timing message in Fig. 3C, as the RCS CP 150 will not transmit information to Bluetooth devices 112 during WLAN communications.

Regarding claim 18, which recites "wherein the information concerning the organization relates to at least one of the timing of at least one period of time for communication within the second radio communication system based on a centrally controlled radio access method and the timing of at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", as described above, see the time periods in Fig. 2 of Sugaya, where the contention access period is the recited "decentrally controlled time

period" and the contention free period is the "centrally controlled time period", as recited.

Regarding claim 19, which recites "wherein the information concerning the organization relates to the assignment of radio resources of a period of time for communication within the second radio communication system based on a centrally controlled radio access method to at least one radio station of the second radio communication system", as shown in Fig. 3C, the "time periods for communication within the second radio communication system" within the frequency bands are "controlled" by the global WLAN AP 120, which is "centrally controlled", as recited.

Regarding claim 20, which recites "wherein the information concerning the organization relates to at least one time for at least one of future transmission of information concerning the organization of communication within the second radio communication system by at least one radio station of the second radio communication system and future transmission of a message with instructions concerning the organization of communication within the second radio communication system by the first radio communication system", as described above in the rejection of claim 17, the recited "future transmission of information concerning" is any "free time period" (any time/frequency block without WLAN communication) shown in the global timing message in Fig. 3C of Chen and transmitting the beacon signal of Sugaya (from the WLAN AP 120 of Chen) reads on the recited "future transmission of a message with instructions concerning the organization of communication within the second radio communication system by the first radio communication system".

Regarding claim 21, which recites "wherein, based on the instructions of the first radio communication system for organizing communication within the second radio communication system, said method is performed in sequence as follows: transmitting during a first period of time information by at least one radio station of the second radio communication system concerning the organization of subsequent communication within the second radio communication system; communicating during a second period of time within the second radio communication system based on a decentrally controlled radio access method; and communicating during a third period of time within the second radio communication system based on a centrally controlled radio access method", Sugaya teaches (as shown in Fig. 2) these three time periods as recited, where the beacon signal (which includes the network/device scheduling information, see also Fig. 7) is transmitted in the recited first time period, during the contention access period (recited second time period) "decentrally controlled" communications occur, and during the contention free period "centrally controlled" communications occur, as recited.

Regarding claim 22, which recites "wherein common frequency radio resources are available to the first and the second radio communication systems, wherein the first period of time is preceded by sending the message of the first radio communication system with instructions for organizing communication within the second radio communication system, and wherein the third period of time is followed by communicating within the first radio communication system during a fourth period of time", the time/frequency blocks (shown in Fig. 3C) are resources "available to the first

and the second radio communication systems" as recited. As described above, a transmission of the global timing map and the beacon signal (as taught by Sugaya) sent from the WLAN AP 120 of Chen, which occurs periodically, would be transmitted both "before the first time period and after the third time period", as recited.

Regarding claim 23, which recites "wherein a device of the first radio communication system creates the instructions depending on information about at least one of radio stations and radio resources of the second radio communication system", the global signals created and transmitted from WLAN AP 120 to RCS CP 150 are "created depending on information about (the timing of transmissions) of the radio stations", as recited.

Regarding claim 24, teaches a device in a first radio communication, comprising: means for storing information about at least one of radio stations and radio resources of a second radio communication system having a plurality of radio stations (see global synchronization component 254 in Fig. 2B and described in column 15, lines 58-61); means for creating a message with instructions for organizing communication within the second radio communication system, the message instructing at least one radio station of the second radio communication system to send information contained in the message concerning organization of communication within the second radio communication system to other radio stations of the second radio communication system (see global timing map generator 256 in Fig. 2B and described in column 15, lines 61-65, where reception of the "message" in the RCS CP 150 inherently "instructs

the RCS CP 150 to send" as recited); and means for transmitting the message to the subset of radio stations of the second radio communication system (see global transmitting component 240 in Fig. 2B, used to transmit the global timing map to the local RCS CP 150, see also step 514 in Fig. 5).

Regarding the recited "means for selecting a subset of the radio stations of the second radio communication system" as the WLAN AP 120 receives the local timing map from RCS CP 150 and transmits the global map to RCS CP 150 without transmitting the global map to any Bluetooth devices 112, and Chen repeatedly teaches (see column 11, lines 34-41) that the WLAN AP 120 "recognizes the RCS CP 150 as a WLAN device", the WLAN AP 120 inherently "selects a subset of the radio stations of the second radio communication system", where the "subset" of the radios stations is the RCS CP 150.

If this "means for selecting a subset" is not found to be inherently performed in the (global receiving/transmitting components 230/240 within) WLAN AP 120 of Chen, it would have been obvious to one of ordinary skill in the art to modify Chen to select (to transmit the global timing maps only to) a subset of the devices in the second network, where the subset is "master devices" (such as the RCS CP 150) and not transmit the global maps to "slave devices" (such as the Bluetooth devices), as it is the function of the master device to control the slave devices.

Regarding the newly recited feature (previously recited in claim 18), "wherein the information concerning the organization relates to at least one of the timing of at least one period of time for communication within the second radio communication system

based on a centrally controlled radio access method and the timing of at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", although any time period that does not have WLAN communications scheduled (as shown in Fig. 3C) in the global timing map could be broadly interpreted to be "at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", Sugaya is added for completeness to show this feature. It is also noted that "centrally" and "decentrally" are relative terms. For example, locally controlled slave devices may be considered to be centrally controlled relative to a second (local) network, however as these devices are not controlled by global network, so they may be considered as decentrally controlled relative to the first (global) network.

In an analogous art, Sugaya teaches a communications system which allows a plurality of wireless networks to (coexist and) communicate using a same frequency band (see Summary of Invention in column 4) which provides channel slots for each network in a TDMA space. Sugaya teaches/shows in Fig. 2 (as described in columns 8-9) a "beacon signal", followed by a "contention access period" (CAP), followed by a "contention free period" (CFP). As a "contention period" is not centrally controlled (i.e. devices "contend for communications"), the "contention access period" which follows the beacon signal is "at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method", and the contention free period (which includes dedicated periods for communication which must be scheduled by some central device) is a period of time that is centrally controlled, as

recited. Suguya also teaches that unused time slots (in one network) may be used by another network (see for example Fig. 11 and the Abstract).

Therefore, as Chen also teaches (see column 2, lines 39-50, "connecting devices in peer-to-peer networks" which communicate "without a dedicated administrative server or master device") "decentrally controlled" peer-to-peer networks, and Sugaya teaches the conventionality of providing timing signals for a plurality of networks (which include both centrally and decentrally controlled periods as recited), it would have been obvious to one of ordinary skill in the art to modify the scheduling of Chen to transmit signals as described in Sugaya, in order to schedule both "central and decentrally controlled periods", as is conventional.

Regarding the newly recited feature that the first radio communication system "is a cellular system" and "wherein central assignment of radio resources takes place by the cellular system and wherein at least one centralized as well as one decentralized period of time are assigned to the second communication system", Chen teaches assigning time periods in WLAN and Bluetooth networks, and does not explicitly mention cellular networks.

In an analogous art Chitrapu teaches a system and method for integrating cellular and WLAN communications (see Abstract). Chitrapu describes a number of scenarios (as shown in Figs. 2-10) of transmitting user traffic and control signals to the user device based on the user device capabilities (A-C) and the level of integration (levels 0-2) between the cellular and WLAN networks (as described in columns 2-3). In the examples shown in Figs. 2, 5 and 8 (where the user device has level 0 integration),

the user device can only communicate with one network (either the WLAN or the cellular) but not both simultaneously.

Therefore, as the purpose of Suguya is to avoid unused time slots in overlapping networks and Chitrapu teaches scenarios of communicating with only a single network (and thereby creating unused time slots in the unused network), it would have been obvious to modify the methods of assigning the recited time periods of Chen/Suguya to be used in a central cellular network as taught by Chitrapu, in order to allocate time slots in cellular and WLAN networks, as is conventional.

Regarding claim 25, which recites “wherein the instructions in the message created by the device relate to at least one of timing specifications for communication within the second radio communication system, at least one period of time for communication within the second radio communication system based on a centrally controlled radio access method and at least one period of time for communication within the second radio communication system based on a decentrally controlled radio access method”, as described above, see the time periods in Fig. 2 of Sugaya, where the contention access period is the recited “decentrally controlled time period” and the contention free period is the “centrally controlled time period”, as recited.

Regarding claim 26, which recites “wherein, via the message created by the device, a time for transmitting the information concerning the organization is

communicated to the at least one radio station", the recited "time for sending" is any "free time period" (any unoccupied time/frequency block) shown in the global timing message in Fig. 3C.

### *Response to Arguments*

5. Applicant's arguments with respect to claims 14-17 and 19-26 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN KELLEY whose telephone number is (571) 272-5652. The examiner can normally be reached on Monday-Friday, 9AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SSK/

/LESTER KINCAID/
Supervisory Patent Examiner, Art Unit 2617